

Claims

1. Device for shared management of a resource (1) between several users, of the type comprising:

- 5 - a work memory (3), able to store user identifiers ( $u_i$ ), as well as several share parameters ( $D_i$ ), and several amounts ( $E_i$ ) capable of advancing,
- a decision means (6) for allocating a chosen service slice ( $Q_i$ ) of the resource to a user selected
- 10 ( $u_S$ ) as possessing the least advanced amount ( $E_i$ ), and for subsequently advancing the amount ( $E_i$ ) of this selected user ( $u_S$ ) according to a chosen increment ( $dE_i$ ),
- a memory link means (5), for associating a share
- 15 parameter ( $D_i$ ) and an amount ( $E_i$ ) with each user identifier ( $u_i$ ), while defining user queues of the "first in - first out" (FIFO) type, such that the identifier at the head of a queue always designates the user having the least advanced amount ( $E_i$ ) in this
- 20 queue,

characterized in that the work memory (3) is able to store in addition a limited number of values of increments ( $P(c)$ ), in that the memory link means (5) is contrived, on the one hand, so as to associate one of

25 these values of increments ( $P(c)$ ) with each user, and, on the other hand, to define the said queues on the

basis of the said values of increments  $(P(c))$  in limited number, and in that the decision means allocates the selected user  $(uS)$  a service slice  $(Q(uS))$  associated with a pair  $(D(uS)), P(c))$

5 represented by its share parameter  $(D(uS))$  and the increment of its queue  $(P(c))$ , according to a predetermined law.

2. Device according to Claim 1, characterized in that the said predetermined law  
10 comprises the fact that the service slice  $(Q(uS))$  allocated to the said selected user  $(uS)$ , is dependent on the product of its share parameter  $(D(uS))$  times the increment of its queue  $(P(c))$ .

3. Device according to one of Claims 1 and  
15 2, characterized in that the memory (3) is able to store, in addition, an overall amount  $(V)$  capable of advancing, and in that the decision means (6) is contrived so as, with each allocation of the resource, to advance the overall amount  $(V)$  according to a chosen  
20 overall increment  $(pV)$ , and so as to deny any allocation of resource to a user  $(u_i)$  so long as the overall amount  $(V)$  is less advanced than the amount  $(E_i)$  of this user.

4. Device according to Claim 3,  
25 characterized in that the decision means (6) is contrived so as to define, with each allocation of the

resource to a user ( $uS$ ), an overall increment ( $pV$ ),  
derived from the queue increment ( $P(c)$ ) of this user  
( $uS$ ) and weighted by a coefficient chosen so that the  
advance of the overall amount ( $V$ ) is representative of  
5 the amounts of services allocated.

5. Device according to one of the preceding  
claims, characterized in that the memory (3) comprises  
a (FIFO) "queues" area comprising, for each queue, a  
queue increment ( $P(c)$ ) and the identifier of the head  
10 user ( $u(c)$ ), and a "users" area comprising, for each  
user, his identifier ( $u$ ), his share parameter ( $D(u)$ ),  
as well as an end of queue item ( $nd(u)$ ).

6. Device according to Claim 5,  
characterized in that the memory link means (5) is  
15 contrived, on the one hand, so as to define the said  
(FIFO) queues in the guise of circular lists, and on  
the other hand, so as to associate only a single amount  
( $F(c)$ ) with the users of one and the same list, whereas  
the said (FIFO) "queues" area of the memory comprises  
20 an amount ( $F(c)$ ) for each list.

7. Device according to Claim 6,  
characterized in that the decision means allocates  
service slices ( $Q(uS)$ ) to the users ( $u(c)$ ) of the list  
of least advanced amount ( $F(c)$ ), and in that it  
25 advances the amount ( $F(c)$ ) of this list after  
allocating a service slice to the end of list user.

8. Device according to one of the preceding claims, characterized in that, each user ( $u_i$ ) being capable of requesting a service slice ( $Q_i$ ) of the resource, it comprises an input/output link (4),  
5 contrived so as to distinguish the requesting users ( $a(u)=true$ ) from the non-requesting users of the resource ( $a(u)=false$ ).

9. Device according to Claim 8, characterized in that the memory link means (5) is  
10 contrived in addition so as to cooperate with the said input/output link (4), and so as to define distinct queues of newly requesting users ( $tfs="new"$ ) and of formerly requesting users ( $tfs="former"$ ).

10. Device according to Claim 9, taken in  
15 combination with one of Claims 3 and 4, characterized in that the memory link means assigns a newly requesting user ( $u$ ) an amount ( $F(u)$ ) representative of the overall amount ( $V$ ).

11. Device according to one of Claims 8 to  
20 10, characterized in that the decision means (6) is contrived so as to eliminate from a queue a non-requesting ( $a(u)=false$ ) user ( $u$ ) appearing at the head of this queue ( $pua(c)=u$ ).

12. Device according to Claim 11, taken in  
25 combination with one of Claims 3 and 4, characterized in that the said elimination of a non-requesting user

is performed when the user (u) is authorized to use the resource ( $ea[c(u)]=true$ ) and possesses the least advanced amount ( $F(u)=FmE$ ).